1004A(15)

SCHEME OF VALUATION
(Scoring Indicators)

Revision:2015		Course Code :1004		
Course Title: Engineering Chemistry- I				
Qst. No.	Scoring Indicators	Split up Score	Sub Total	Total
PART A				
I(1)	Definition	1		
	One Example	1		2
I(2)	Definition	2		2
I(3)	Slaked lime (Ca(OH)$_2$)	1		
	Equation	1		2
I(4)	Wrought Iron	2		2
I(5)	i. Brass (Cu & Zn)	1		2
	ii. Bronze (Cu & Sn)	1		
PART B				
II(1)	Any 3 Properties	3		
	Any 3 Applications	3		6
II(2)	Proton, Neutron, Electron	3 × 1	3	
	Their charge	3× 0.5	1.5	
	Their mass	3 × 0.5	1.5	6
II(3)	Definition	2		
	Mathematical statement, $K_w = [H^+][OH^-]$	2		
	Value at 25 ^{0}C = 10^{-14} mol^2/L^2	2		6

II(4)	Definition of Conjugate acid-base pair	3		
	Explanation with at least one example	3		6
II(5)	Definition of Portable water	2	2	
	Any four characteristics	4×1	4	6
II(6)	Definition of sterilization	2		
	Name of any two methods for sterilization	2		
	Explanation of above two methods	2		6
II(7)	Any six properties of metals	6×1		6

PART C

III(1)	Definition for catalytic promoter	2		
	Definition for catalytic poison	2		
	One example for each.	2×1	6	
III(2)	Definition for atomic number	1		
	Definition for mass number	1		
	For $_7N^{14}$			
	No. of protons = 7	0.5		
	No. of electrons = 7	0.5		
	No. of neutrons = 14-7 = 7	0.5		
	For $_{17}Cl^{35}$			
	No. of protons = 17	0.5		
	No. of electrons = 17	0.5		
	No. of neutrons = 35-17 = 18	0.5	5	
III(3)	Name of any two methods	2×1		
	Explanation of above two methods	2×1	4	15

IV(1)	Definition for homogeneous catalysis	2		
	Definition for heterogeneous catalysis	2		
	One example for each.	2×1	6	
IV(2)	Any five applications	5×1	5	
IV(3)	Any four differences between atom and molecules	4×1	4	15
V(1)	Definition for pH scale	1.5		
	Definition for pOH scale	1.5		
	Give relation between pH and pOH	2	5	
V(2)	Any five applications of pH	5×1	5	
V(3)	pH of 0.01M HCl = -log(10^{-2}) = 2	2		
	pH of 0.01M NaOH			
	pOH of 0.01M NaOH = -log(10^{-2}) = 2	1		
	hence pH = 14-2 = 12	2	5	15
VI(1)	Definition for Normality and Molarity	2×1.5		
	Mathematical formulae for Normality and Molarity	2×1.5	6	
VI(2)	Normality equation ($N_1 V_1 = N_2 V_2$)	4	4	
VI(3)	Molarity, M = $\dfrac{W \times 1000}{m \times V \text{ (mL)}}$	1		
	Hence, m = $\dfrac{w \times 1000}{M \times V \text{ (mL)}}$	1		
	m = $\dfrac{2.25 \times 1000}{0.1 \times 250}$	1		
	Molar mass = 90	2	5	15

VII(1)	Explanation of soft water and hard water	2×2	4	
VII(2)	Explanation of ion exchange process.	6	6	
VII(3)	Explanation of reverse osmosis.	5	5	15
VIII(1)	any five physical properties of water	5×1	5	
VIII(2)	Temporary hardness & permanent hardness	2×1		
	Explanation for the above two on the basis of heating	2×1	4	
VIII(3)	Boiling & Clarke's processes	2×1		
	Explanation with	2×1		
	Equations	2×1	6	15
IX(1)	Quenching	2		
	Tempering	2		
	Nitriding	2	6	
IX(2)	Definition of alloy	1		
	Any four purposes	4×1	5	
IX(3)	Two advantages	2		
	Two limitations	2	4	15
X(1)	Name and	2×1		
	effects of any two impurities in steel.	2×1	4	
X(2)	Name of the five different steps	5×1	5	
X(3)	Any six uses of powder metallurgy	6×1	6	15